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Prediction of Therapeutic Process and Outcome:  
Examining Observer Ratings of Client Characteristics

Honors Research Thesis

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Katherine E. Sasso

The Ohio State University  
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Project Advisor: Professor Daniel R. Strunk, Department of Psychology

## Prediction of Therapeutic Process and Outcome: Examining Observer Ratings of Client Characteristics

According to cognitive theories, people suffering from Major Depressive Disorder (MDD) often have maladaptive negative thoughts that adversely affect their mood and activity level. Cognitive Therapy (CT) for Depression is based on the rationale that an individual's behavior and affect are influenced by the way they think about the world. This structured and active approach to treating depression aims to reality-test and correct distorted personal concepts and beliefs that underlie negative cognitions. The end goal of CT is to reduce clients' depressive symptoms by providing them with the skills needed to independently notice, challenge, and reverse their negative beliefs and attitudes.

Cognitive Therapy has been established as an efficacious treatment for depression, with overall estimates of its efficacy being comparable to antidepressant medication treatments (Strunk & DeRubeis, 2001; DeRubeis, Gelfand, Tang, & Simons, 1999; Hollon, Stewart, & Strunk, 2006). Less is known, however, about the process by which CT achieves these effects (Garraat, Ingram, Rand & Sawalani, 2007; Baldwin, Wampold, & Imel, 2007). Several CT researchers have attempted to identify the elements of therapy that promote (or hinder) symptom change by examining a number of therapeutic process variables, or characterizations of therapist-client interactions (DeRubeis & Feeley, 1990; Martin, Garske, & Davis, 2000; Webb, DeRubeis, & Barber, 2010). One such process variable is the therapeutic alliance, or the collaborative and affective bond between therapist and client (see Martin et al., 2000; Klein et al., 2003).

Since process variables, like the alliance, characterize the interactions of a therapist and client, variability in these process variables could be attributable to therapists, clients, or the interaction of the two (DeRubeis, Brotman, & Gibbons, 2005; Baldwin et al., 2007). Both

therapists and clients have their own personalities and characteristic ways of relating in the context of psychotherapy. To the extent that clients vary on such personality dimensions, client traits may impact process variables. For example, a person's social competencies and communication skills may affect their ability to form a strong alliance with their therapist (Barber, 2009). Insofar as process variables are a function of client characteristics, the association of process variables and outcome (without considering the role of client characteristics) may lead researchers to erroneous conclusions about the active ingredients of treatment. For example, suppose researchers find compelling evidence for an alliance outcome association, it could be that variability in client traits was partly responsible for this relationship. Perhaps the ability of the alliance scores to impact outcome varied significantly as a function of client extraversion. Despite the wealth of literature on the function of process variables in CT, little is known about the extent to which specific client traits contribute to such process variables (Barber, 2009; Baldwin et al., 2007).

With this in mind, this paper focuses on the assessment of client characteristics, which may contribute to often-studied process variables in CT for depression. This initial foray, into elucidating the role of specific client traits, may have several implications on future process outcome studies. By offering researchers a means to further identify client characteristics that may be important determinants of both process variables and therapy outcomes, the methods used in our project have the potential to advance the understanding of how therapeutic changes occur in CT for depression. Thus, our methods may foster a more precise understanding of the relationship between specific client characteristics and the process of change in cognitive therapy for depression.

### **Process Variables in CT for Depression: Focus on the Therapeutic Alliance**

Although the means by which CT achieves its effects are still not fully understood (Garraat et al., 2007), the examination of therapeutic process variables may offer a useful level of analysis for identifying how CT for depression may achieve its effects (Strunk, Brotman, & DeRubeis, 2010; Strunk, Cooper, Ryan, DeRubeis, & Hollon, 2011). For the purpose of this study, we will focus primarily on the therapeutic alliance as a process variable, as the alliance has received more research attention than perhaps any other process variable and has arguably been the process variable to most consistently be related to therapeutic outcome (Webb et al., 2011; Martin et al., 2000). Broadly speaking, the alliance has been defined as the extent to which therapist and client engage in collaborative and purposeful work (Bordin, 1979; Baldwin et al., 2007). Bordin (1979) expanded the definition of alliance by separating it into three components: *Goal*, *task*, and *bond*. *Goal* specifies a mutual agreement between therapist and client on the desired outcomes the intervention aims to achieve; *task* refers to an agreement on the approaches used to achieve these goals; and *bond*, refers to the presence of a mutual liking and trust indicative of a positive therapist-client relationship. It has been suggested that the alliance is important to the process of change across a variety of psychotherapies, including some cognitive-behaviorally oriented treatments for depression (Martin et al., 2000; Klein et al., 2003; Baldwin et al., 2007).

### **Importance of the Therapeutic Alliance**

A number of authors have argued that the alliance is vitally important to ensuring good therapeutic outcome (Barber, 2009; Martin et al., 2000; Horvath & Greenberg, 1989). In their meta-analysis, Martin et al. (2000) examined 79 studies that explored the relation of the alliance and outcome. Across these studies, a small but reliable association of the alliance and outcome

was found ( $r = .22$ ). Thus, the alliance exhibits a small, reliable association with symptom change experienced during a course of psychotherapy.

However, many studies of the alliance-outcome association fail to establish temporal precedence of the process variable by examining the alliance at a mid-treatment assessment in relation to changes in symptoms over the full course of treatment (see Feeley, DeRubeis, & Gelfand, 1999). Thus, any association of the alliance and outcome could be attributable to either the alliance's relation to symptom change prior to the assessment of the alliance or symptom change occurring after the assessment of the alliance. For example, when the alliance is only measured at a mid-treatment assessment, symptom improvement prior to this assessment point may foster a stronger therapeutic alliance and prior symptom change may account for any subsequent alliance outcome relationship that is found. Therefore, in order to establish the temporal precedence of a process measure from a given session, one must examine its relations to symptom change occurring subsequent to the assessment of the process measure (Strunk et al., 2010). In the relatively small number of studies in which the alliance has been examined as a predictor of subsequent symptom change specifically, the average relation between alliance and outcome is somewhat weaker ( $r = .10$ ; Barber, 2009). Thus, across different types of psychotherapy for different conditions, there appears to be a very small association of the alliance with subsequent therapeutic outcome.

While the average association of the alliance and outcome may be informative, some have suggested that the alliance is more important in some forms of psychotherapy than in others. A small number of studies have examined the relations of the alliance with subsequent symptom change in cognitive-behavioral therapies for depression specifically. The two largest studies of this kind suggest that the alliance predicts subsequent symptom change. In a study by Klein et al.

(2003), 367 chronically depressed clients received the Cognitive-Behavioral Analysis System of Psychotherapy (CBASP), alone or with medication. By using mixed-effects-growth-curve models, they were able to examine the full trajectory of symptom change from weeks 3 through 12. Week 2 alliance scores proved to be significant predictors of subsequent change in depressive symptoms over this 9-week time frame ( $r$ s ranged from .10 to .15 in the models examined). Similarly, Strunk et al. (2011) examined a sample of 176 depressed outpatients randomized to CT with medication as part of a clinical trial. Alliance was found to be a significant predictor of session-to-session symptom change across the first three sessions ( $r = .16$ ). Thus, the alliance has demonstrated a small, but reliable association to outcome across a number of different psychotherapies, including CT for depression (Strunk et al., 2011; Klein et al., 2003; Martin et al., 2000).

### **Client Contributions to the Alliance Outcome Association**

While the majority of previous research has established the importance of the alliance-outcome relationship, little has been done to examine possible sources of variability in the alliance outcome association (Baldwin et al., 2007). Since the complex interaction between clients and therapists provides a foundation for the therapeutic alliance, it is important to examine the extent to which clients' unique characteristics may impact the therapeutic relationship (Baldwin et al., 2007; DeRubeis et al., 2005). Unfortunately, only a small number of studies, examining the alliance and outcome association in CT, have examined client characteristics as a possible source of variance (Barber, 2009; Klein et al., 2003).

Those studies that have examined client contributions to the alliance outcome association have yielded somewhat conflicting results. In a 2007 study, Baldwin et al. used multi-level modeling to examine the extent to which outcome in psychotherapy might be attributed to client

or therapist variability in the alliance. Data were drawn from 331 clients, seen by 80 therapists as part of a previous psychotherapy study (see Brownson, 2004). Client ratings of both the alliance and outcome were available; however the alliance was not rated by therapists. In order to examine client vs. therapist contributions to the alliance, client and therapist factors were estimated. To yield the client factor, Baldwin and colleagues used scores reflecting the deviation of each client's alliance score from the mean alliance score for his or her therapist. To yield the therapist estimates, scores reflecting the deviation of each therapist's mean alliance score from the overall mean alliance score were used. While the therapist factor was found to be predictive of outcome, the client factor was unrelated to outcome.

This finding shows that within the caseload of a given therapist, the relative magnitude of a client's alliance score did not predict outcome. While the authors take this as evidence against the role of client contributions to the alliance, several limitations preclude a definitive conclusion that client contributions to the alliance are not an important determinant of outcome. For the 331 clients examined, the alliance was measured at one time point (session 4). Because symptom change was measured from pre to post treatment, estimates of alliance-outcome association reflect both the relation of the alliance and prior symptom and the relation of the alliance and subsequent symptom change (when the latter is specifically of interest). Furthermore, the clients in this study were not randomly assigned to therapists. Insofar as there may have been systematic differences in which clients saw which therapists, estimates of the predictive relation of therapist and client contributions may have been biased from the effects of interest.

Using similar methods to the Baldwin et al. group, Barber and Gallop (2008) found that client variance was responsible for the impact of the alliance on outcome (as cited in Barber, 2009). More specifically, they found that clients explained roughly 24% of the outcome variance,

while therapists only explained about 4%. Thus, these two studies, which employed similar methods of modeling client vs. therapist contributions to the alliance outcome association, yield rather discrepant findings.

Among those studies that examine specific client variables in the context of the alliance outcome association, a few suggest that clients' characteristics contribute significantly to the therapeutic relationship. In a 2009 study, Hersoug, Høglend, Havik, Von der Lippe, and Monsen explored the relation of pretreatment client characteristics and the growth of the therapeutic alliance in clients undergoing long term psychotherapy. The majority of clients (89%) had one or more Axis I disorders (SCID-I; First, Spitzer, Miriam, & Williams, 2002), with anxiety and affective disorders being the most prevalent. Hersoug et al. (2009) measured client rated alliance at multiple time points throughout the course of treatment (sessions 3, 12, 20, and at every 20<sup>th</sup> successive session). Clients who reported better current interpersonal relationships and good maternal care up to adolescence had more positive alliance ratings throughout therapy. Higher global functioning was related to the growth of the alliance overtime. Additionally, clients who indicated interpersonal problems of a cold/detached kind reported poorer early working alliance scores. Similarly, Mallinckrodt (2000) suggested that client variables, such as social competence and attachment style, may affect clients' ability to form a strong alliance. Iacoviello et al. (2007) found that the extent to which clients' treatment preference aligns with the treatment they receive impacts the development of the therapeutic alliance, with clients receiving the treatment they prefer reporting higher alliance scores.

These preliminary efforts, to explore the role of client characteristics in the alliance-outcome association, have helped to clarify the extent to which clients contribute to the process of change in psychotherapy; however, nearly all of these studies rely on clients' self-reported



traits. Future research is needed to measure client characteristics from multiple perspectives (Baldwin, et al., 2007; Barber, 2009). Measuring client traits in a different manner (e.g., observer ratings of client traits) may elucidate the relationship between client traits, process, and outcome. Additionally, the majority of studies (Hersoug et al., 2009; Mallinckrodt, 2000, Klein et al., 2003) have examined the extent to which clients' behavioral tendencies (i.e. interpersonal relationships, attachment style, and social competence) impact the alliance-outcome association. Relatively few studies, that aim to clarify the connection between client characteristics and the alliance outcome association, have examined how clients' specific *personality* traits impact the process outcome relationship. While problematic personality traits are prevalent in the depressed population and have been shown to impede treatment progress (Reichborn-Kjennerud et al., 2010; Barber, 2009), more research is needed to determine exactly *which* client traits may hinder the formation of a strong therapeutic alliance and the overall therapeutic process.

### **Personality Disorders (PDs) and Overall Outcome**

In order to examine clients' contributions to the therapeutic alliance and outcome, it is important to consider the prevalence of problematic personality traits among depressed clients. Individuals who suffer from Major Depression Disorder (MDD) are more vulnerable to general personality disorder (PD) pathology than non-depressed individuals (Reichborn-Kjennerud et al., 2010). In fact, some report that roughly half of clients with Axis I disorders (i.e. depressive disorders, anxiety disorders, eating disorders) receive a PD diagnosis (VanVelzen & Emmelkamp, 1995). Problematic interpersonal relationships are common among those with PDs and those with MDD. Among people with MDD, interpersonal stressors are often cited as triggers that preceded their depression (American Psychiatric Association, 2000; Hammen,

2005). These interpersonal difficulties common among depressed clients may have their roots in quick first impressions made by others (Oltmanns, Friedman, Fiedler, & Turkheimer, 2004)

While the relationship between client traits and process variables in CT remains somewhat unclear, there is evidence that client characteristics are related to overall outcome in CT for depression, as the presence of PDs and problematic interpersonal relationships have been reported to negatively impact subsequent therapeutic outcome. Clients with PDs or PD features often show poor homework compliance and low motivation for change (VanValzen & Emmelkamp, 1995). Thompson, Gallagher, and Carr (1988) found that behavioral and psychodynamic therapy were both more effective for clients without a PD than for clients with a PD. Persons, Burns, and Perloff (1988) found that PD clients were significantly more likely to prematurely terminate treatment. In a more recent study by Fournier et al. (2008), people with personality disorders were found to respond less favorably to cognitive therapy than individuals without personality disorders. Although a number of studies have shown that PDs and PD traits negatively impact overall treatment outcome, how personality disorder characteristics impede treatment progress and process outcome associations is not yet well understood (VanValzen & Emmelkamp, 1995). Thus, further research is needed investigate whether problematic personality traits impact the therapeutic process variables thought to give rise to subsequent symptom change.

### **Methods of Assessing Client Traits**

While much of the research on clients' personality characteristics relies on self-report measures, less is known about how clients' normal and pathological personality traits are perceived by others (Oltmanns et al., 2004). Perhaps the most often used measure of PDs is the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First, Gibbon,

Spitzer, Williams, & Benjamin, 1997). The SCID-II involves administering a self-report questionnaire of personality pathology (per DSM-IV diagnoses) followed by a semi-structured interview focusing only on those personality disorder diagnoses which appear probable on the basis of clients' initial self-report (VanValzen & Emmelkamp, 1995).

Those studies that have examined the potential impact of client characteristics on therapeutic process variables and outcome in CT have relied mostly on clients' self-reported characteristics (Hersoug et al., 2009; Klein et al., 2003; Iacoviello et al., 2007). Self-report measures, however, are susceptible to expectancy and self-presentation biases. Additionally, relying solely on self-report measures of client traits impedes researchers from gaining insight as to how these client traits are perceived by others. Personality judgments about other people are often formed quickly and without conscious effort (Oltmanns et al., 2004). Thus, others' perceptions of clients' traits, including that of the therapist, may affect the therapeutic process. Beyond diagnostic information, we suspect that interpersonal characteristics, evident in an intake evaluation, might partly lead to differences in both process variables and outcomes. The ability to disentangle these pre-existing client factors could elucidate observed process outcome associations and lead to advances in our understanding of how CT achieves its effects.

### **Thin Slice Method**

One unobtrusive method of assessing personality dimensions that does not rely on self-report is the use of thin slice methodology. Thin-slice clips are short (typically < 5 min) video or audio clips taken from a longer recording of the person interacting with someone else (Oltmanns et al., 2004). Using the thin slice method, raters identify problematic interpersonal relationship and personality disorder traits based upon these brief and dynamic video samples of a person's behavior (Oltmanns et al., 2004). Previous studies (Oltmanns et al., 2004; Friedman, Oltmanns,

& Turkheimer, 2007) support thin-slice raters' ability to accurately assess personality disorder traits and personality characteristics, which have been shown to hinder success in psychotherapy. While the thin slice method has yet to be utilized in the context of CT research, it offers a reliable way to identify pre-existing client characteristics that may impact treatment outcome.

In a 2004 study, Oltmanns et al. found that several untrained undergraduate students were able to make reliable judgments about personality traits related to PDs and the five factor model of personality (FFM; Costa & McCrae, 1992) after watching 30-second thin slice clips. These clips were taken from interviews with target persons who were selected from a sample of 229 military recruits participating in a personality disorders study (Oltmanns et al., 2004). Roughly 28% of these people met the DSM-IV criteria for a definite or probable PD. To examine the construct validity of the thin slice ratings, they examined the relationship between thin slice ratings of PD traits and corresponding diagnostic indicators of those PD traits (Oltmanns et al., 2004). Self-reported diagnostic information regarding PD traits was collected using the Structured Interview for DSM-IV Personality (SIDP-IV; Pfohl, Blum, & Zimmerman, 1997). Untrained raters reliably judged individuals who self-reported traits of Schizoid PD as less extraverted and less likeable. They also were able to identify individuals with select traits associated with Histrionic PD as more extraverted and likeable. Both of these relationships were statistically significant. Although non-significant, raters judged individuals who self-reported traits of Avoidant PD as less likeable and extraverted and judged individuals who self-reported traits of Narcissistic PD as more likeable and extraverted. While untrained raters are not capable of formally diagnosing PDs, their ability to identify traits associated with personality disorders on the basis of minimal information attests to the idea that people's quick judgments may convey

meaningful information about personality characteristics, including those in the clinical range (Oltmanns et al., 2004).

### **The Present Study**

Difficulties in social relationships and traits of personality disorders have been shown to exacerbate depression and impact psychotherapy outcomes. While the majority of the CT literature tends to focus on the effect specific treatment variables have on outcome, the extent to which client characteristics influence these frequently studied process variables and subsequent symptom change remains less clear. Furthermore, little is known about how others' perceptions of client traits may influence the treatment process and symptom change, as information regarding client characteristics is typically obtained using self-report methods. The thin slice literature has shown that raters can accurately identify personality characteristics commonly associated with some PDs and the five factor model of personality. Research, however, has yet to examine the utility of thin-slice ratings in predicting psychotherapy process variables or therapeutic outcome.

In this study, we examine the impact of client characteristics and PD traits on the therapeutic alliance and subsequent treatment outcome. On the basis of thin slice video clips taken from clients' intake evaluations, trained undergraduates rated personality disorder traits and client characteristics that are known to be discernible to thin-slice raters. Our analyses will address the following main hypotheses: (1) consistent with prior work, raters will accurately identify clients who self-report traits of Schizoid PD as being lower in extraversion and less likeable; also, clients who exhibit Histrionic PD features will be rated as more likeable and extraverted; (2) thin slice ratings of client characteristics will predict early response to treatment (i.e., symptom change and risk of dropout); and (3) thin slice ratings of client characteristics will

be significantly related to clients therapeutic alliance scores. Overall, we suspect that information regarding client traits, obtained using the thin slice method, may provide an important complement to traditional self-report assessments.

## **Methods**

### **Clients**

The sample consisted of 67 adults from the Columbus area who agreed to participate in 16-weeks of CT for depression as part of a larger research study. All participants had a primary Axis I diagnosis of Major Depressive Disorder (MDD), according to DSM-IV criteria. Since one client's intake evaluation was not recorded, the sample was reduced to 66 clients.

Clients were initially assessed using a 15-20 minute phone screening on the DSM-IV criteria for MDD (APA, 1994). If they appeared to meet criteria, they were brought in for an intake evaluation. In order to be eligible for the study, clients had to meet the following inclusion criteria: (a) diagnosis of MDD, according to DSM-IV criteria (APA, 1994); (b) 18 years or older; and (c) willing and able to give informed consent. Exclusion criteria included: (a) current Axis I disorder other than MDD if it constituted the predominant aspects of the clinical presentation and if it required treatment other than that being offered; (b) history of bipolar affective disorder (type I only), or psychosis; (c) subnormal intellectual potential ( $IQ < 80$ ); (d) evidence of any medical disorder or condition (including pregnancy) that could cause depression; (e) clear indication of secondary gain (e.g. court ordered treatment); and (f) current suicide risk sufficient to prevent treatment on an outpatient basis. In addition to meeting these criteria, clients previously on medication were asked to maintain a stable dosage over the course of the study.

**Demographics.** The majority of our sample was Caucasian (84%), with 10% African American and 4% Asian. 57% were women ranging in age from 18-69 years ( $M = 36.25$ ,  $SD = 13.32$ ). Additionally, 31% of the sample was married or living with a significant other.

## Measures

### **Diagnostic.**

**Major depressive disorder.** The Structured Clinical Interview for the DSM-IV (SCID-I; First et al., 2002) was used, at intake, to assess whether potential participants met the diagnostic criteria for a diagnosis of MDD.

**Personality disorders.** The Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al., 1997) was administered at intake to determine if clients met the diagnostic criteria for a personality disorder. Clients first filled out the 119 question self-report SCID-II pre-screener questionnaire. If enough characteristics of one of the personality disorders were indicated, then a semi-structure interview was administered in which the evaluator further assessed those disorders.

**Depressive symptoms.** The Beck Depression Inventory-II was used to measure self-reported depressive symptoms (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is an instrument used to assess symptom severity that asks respondents describe how they have been feeling during the past week by rating 21 items on a scale from 0 to 3. Possible total scores range from 0 (minimal depression) to 63 (high depression). The BDI-II was administered at the beginning of each therapy session and at study assessments (i.e. intake, week 4).

An interviewer-administered measure of depressive symptoms, the Hamilton Rating Scale for Depression, was also used (HRSD; Hamilton, 1960; Williams, 1988). The 17-item HRSD (modified to assess atypical symptoms) was administered by trained interviewers. The

HRSD was administered at the intake evaluation, during the fourth week of treatment, and during the post-treatment evaluation, which occurred after 16 weeks of treatment. Higher scores on the HRSD indicate more severe symptoms.

**Thin slice variables: Measuring client characteristics.** We created a thin slice rating form (see Appendix B: Thin Slice Rating Form) and accompanying manual to measure eight client characteristics of interest. After watching each clip, undergraduate raters scored each client, on these eight variables of interest, using the rating form. For all analyses, scores were calculated as the average of all available ratings made for each client.

**Section 1: Views/emotionality.** The first section contains four items designed to measure two client characteristics of interest: (1) Therapy Interest; and (2) Emotionality. To measure a client's therapy interest, we used the average of his or her score on three separate items. These three items attempt to gauge a client's potential fit with CBT (i.e. "*Did the client express any reservations about this form of therapy?*"). We measured our second variable of interest, Emotionality, using just one item. This item is identical to the emotionality item used in Oltmanns et al., 2004 study, with the exception of descriptive anchors that were added to increase inter-rater reliability.

**Section 2: Personality/PD traits.** The second section contains ten items designed to assess personality traits in relation to extraversion, likeability, and four PDs that have been found to be discernible to thin-slice raters (i.e., Avoidant, Histrionic, Narcissistic, and Schizoid). Our third and fourth client characteristics of interest, extraversion and likeability, were measured using 1 item each. The remaining four client characteristics pertain to our four PDs of interest: schizoid, histrionic, narcissistic, and avoidant. Raters answered two items for each of the four PDs of interest. An average of these two scores represents their total score for each PD. All of



the items in this section are identical to the items used in two previous thin slice studies (Oltmanns et al., 2004; Friedman et al., 2007) with the exception of descriptive anchors that were added to increase inter-rater reliability. Each of these items was rated on a Likert-scale ranging from 1(not at all) to 10 (completely).

**Process measure: The therapeutic alliance.** We measured the alliance using the 12 item short form of the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989; Tracey & Kokotovic, 1989); Clients' filled out the WAI following each of the first four therapy sessions.

### **Assessors and Therapists**

The intake assessors were four advanced graduate students, one of whom was male. These four assessors also served as the therapists who administered 16 weeks of CT to these clients; however, the therapist to which a client was ultimately assigned for treatment was always different than the person who conducted his or her intake assessment. Daniel R. Strunk provided supervision for study assessments and the provision of CT.

### **Thin Slice Video Clips**

Three separate thin-slice video clips, a minute in length on average, were examined for each of the 66 clients. We based the three respective clips on each client's response to the following three focus questions asked during the intake evaluation: (1) "Tell me a little bit about what brought you in here today?" (2) "What was going on in your life when this all began (i.e. your most recent depressive episode)?" and; (3) "Who have been the important people in your life?" Each of the three respective clips contained both the assessor asking the question and 30-seconds of the client's response to that question.

Based on clients' responses to these questions, undergraduate raters assessed client traits of interest, using the thin slice rating form. We randomly assigned raters to an approximately

equal number of video clips, with each rater being assigned an equal number of clips from focus questions 1, 2, and 3. Additionally, no rater provided more than one rating per client, in order to avoid rater bias that might be due to knowledge of the client based on a previously watched clip. To ensure (and assess) inter-rater reliability, four independent raters examined each clip. In total, for each client for whom all three clips were available, 12 independent raters assessed the client's three clips (with four independent raters assessing one clip respectively).

Seven clients had a mixture of audio and video clips, as their intake evaluations were not recorded or their video recording was damaged. Additionally, a small number of clients did not have all three clips available due to various reasons (e.g. the focus question was not asked, the tape was not turned on etc.). In this case, the clients were still included and all available clips were used.

### **Raters**

We selected twelve undergraduate students to serve as raters. All of the raters attended four two-hour training sessions before data collection began. They were asked to study and review the DSM-IV criteria for MDD and the four personality disorders of interest. In the first training session, raters completed a quiz on this material and watched a presentation outlining the rationale behind CT for depression. For the remaining training sessions, raters coded 10 different intake sessions taken from a comparable but unrelated study in which participants received CT for depression and were asked the same three focus questions during their intake evaluations. Ratings of the training tapes were discussed in order to establish a mutual understanding of the thin slice items designed to assess client traits of interest.

## Results

Before running parametric statistics, we examined the distributions of all eight thin slice variables of interest for normality. Skewness and kurtosis were within the acceptable range for five of the eight variables (i.e., Therapy Interest, Extraverted, Likeable, Narcissistic, and Schizoid). Each of the remaining three variables required a transformation. The distribution for Histrionic was slightly leptokurtic, or more peaked than the normal distribution. In order to correct this distribution, the raw values were cubed. Additionally, the distributions for Emotionality and Avoidant were both positively skewed and leptokurtic. To transform these distributions, the inverse of the scores for Emotionality and Avoidant were calculated; these transformed values were then multiplied by -1 so that higher scores continued to reflect higher levels of Emotionality and Avoidance.

### Inter-Rater Reliability

In order to evaluate inter-rater reliability for each of the eight variables, we calculated random effects intraclass correlation coefficients (ICCs) using all ratings from all available clips of each client. ICCs were calculated by estimating the variance attributable to client and assessor and dividing the total of these components by variance attributable to the total of these factors along with raters and measurement error. The ICCs were adjusted for the harmonic mean number of raters ( $M = 10.7$ ) because the number of clips varied across clients due to some missing clips. The ICCs were: .80 for Extraversion, .66 for Emotionality, .66 for Likeability, .72 for Schizoid, and .66 for Avoidant. The ICCs for the remaining variables yielded somewhat lower values: .59 for Therapy Interest, .46 for Narcissistic, and .56 for Histrionic.

### **Construct Validity of Thin Slice Ratings**

To explore the construct validity of the thin slice ratings, we examined the relation between thin slice ratings of clients' PD traits and clients' self-reported indicators of PD traits. Correlations between the thin slice ratings of PDs and PD traits (Extraverted, Likeable, Schizoid, Narcissistic, Avoidant, and Histrionic) and clients' SCID-II prescreener scores which correspond to these thin slice ratings are provided in Table 1.

Consistent with our expectations, thin slice raters perceived clients who self-reported high traits of Schizoid PD to be significantly less likable ( $r(66) = -0.29, p = .02$ ). While non-significant, the relationship between self-reported traits of Schizoid PD and thin slice ratings of extraversion was in the expected negative direction. Similarly, there was a non-significant trend for thin slice raters to rate clients who reported high traits of Histrionic PD to be less extraverted.

Correlations between thin slice ratings of our PDs of interest (Schizoid, Narcissistic, Avoidant, and Histrionic) and diagnostic indicators from the SCID-II prescreener were also compared and are represented in Table 1. We see evidence for the construct validity of thin slice ratings, as all four thin slice PD items are positively correlated with their respective SCID-II indicators.

### **Intercorrelations among Thin Slice Ratings of Client Traits**

In order to examine the relationship among thin slice ratings, we calculated correlations among the eight thin slice variables (see Table 2). Although our primary hypotheses did not include any specific predictions about the intercorrelations among thin slice ratings, we expected similar concepts would be correlated in the same direction. Consistent with this expectation and the findings of Oltmanns et al. (2004), ratings of extraversion were highly correlated with ratings of likeability ( $r(66) = 0.48, p < .0001$ ). Additionally, clients rated high in traits of Avoidant and

Schizoid PDs were also rated significantly lower in extraversion. Expected relationships among positive attributes were also found, with therapy interest significantly positively correlated with thin slice ratings of extraversion ( $r(66) = 0.44, p = .002$ ), and likeability ( $r(66) = 0.63, p < .0001$ ).

### **Thin Slice Ratings of Client Traits as Predictors of Outcome**

**Thin slice ratings of client traits as predictors of dropout.** A logistic regression analysis (see Table 3) was conducted to examine whether thin slice ratings of client characteristics, assessed at the intake evaluation, predicted the probability of client dropout during the acute phase of treatment (16 weeks). During this phase, 29% (19 of 66) of the sample dropped out before the end of 16 weeks. For these analyses, the HRSD intake scores were entered as covariates to control for initial symptom severity. As shown in Table 3, clients rated high in Therapy Interest were at a significantly lower risk of dropout,  $\beta = -0.64, SE = 0.31$ , Wald statistic = 4.29,  $p = .04$ , odds ratio = 1.89, 95% CIs [1.03, 3.45]. The odds ratio estimate of 1.89 suggests that for every one standard deviation in therapy interest, clients were 1.89 times more likely to dropout. Additionally, clients perceived by thin slice raters to be high in Emotionality were at a significantly lower risk of drop out,  $\beta = -0.69, SE = 0.32$ , Wald statistic = 4.62,  $p = .03$ , odds ratio = 2.00, 95% CIs [1.06, 3.70]. While thin slice ratings of client views and emotionality proved to be significant predictors of dropout, ratings of clients' PD related traits were unrelated to risk of dropout in this model.

**Thin slice ratings of client traits predicting slope of symptom change.** Standard Hierarchical linear regression (HLM) was used to examine thin slice ratings of client traits as predictors of change in depressive symptoms, as measured by the HRSD, over the course of

treatment (see Table 3). HLM was conducted using SAS Proc Mixed. The interaction of thin slice ratings of extraversion by time was a significant predictor of depressive symptom change ( $t(45) = -2.51, p = .02, r = -0.35$ ), indicating that clients perceived by thin slice raters to be higher in extraversion experienced a significantly faster rate of symptom change. The interaction of thin slice ratings of Avoidant PD traits by time was also a significant predictor of depressive symptom change ( $t(45) = 2.39, p = .02, r = 0.34$ ), indicating the clients perceived to be high in traits of Avoidant PD did significantly worse in treatment. Additionally, clients rated high in traits of Schizoid PD experienced less symptom change over the course of treatment at a trend level ( $t(45) = 1.93, p = .06, r = 0.28$ ). None of the other thin slice ratings proved to be significant predictors of clients' HRSD slopes.

### **Self-Reported PD Traits as Predictors of Outcome**

In the same two models as those used above, the SCID-II prescreener scores that correspond to each of our 4 PDs of interest (Avoidant, Narcissistic, Histrionic, and Schizoid) were examined as predictors of both dropout and slope of symptom change. Hierarchical linear modeling (HLM) was used to examine clients' SCID-II prescreener scores as predictors of clients' symptom change, as measured by HRSD slope, over the course of treatment. None of the SCID-II prescreener scores were significant or trend predictors of clients' HRSD slope (all  $r$ -type effect sizes  $< .09$ ).

A logistic regression analysis was run to examine clients SCID-II prescreener score, on these same four PDs, as predictors of dropout during the acute phase of treatment (16 weeks). Again, none of the other SCID-II sum scores were predictive of dropout (all odds ratio estimates were within [1.1, 1.55]).

### **Relationship between Thin Slice Ratings and Alliance**

To examine the relationship between thin slice ratings and client rated therapeutic alliance, Pearson correlations were calculated (see table 4). Correlations between thin slice ratings and client rated alliance were examined using different analytic approaches.

*Relation of thin slice ratings and alliance scores following session one.* The first column (see table 4) shows the relationship between thin slice ratings and client rated alliance scores of the first CT session only. Clients rated high in extraversion reported significantly higher alliance scores after session one ( $r(63) = 0.31, p = .01$ ). Additionally, clients perceived by thin slice raters to be high in traits of Schizoid PD reported significantly lower alliance scores following session one ( $r(63) = -0.29, p = .02$ ). None of the remaining thin slice variables showed a significant relationship to client rated alliance following session one.

*Relation of thin slice ratings and average of session 1-4 alliance scores.* The second column (see table 4) shows the relationship between thin slice ratings and the average of clients' alliance ratings from sessions one to four. More specifically, all clients who attended the first four sessions made four separate alliance ratings following each of these sessions. Thus their "WAI session 1-4 avg" is the average of all four of these alliance ratings. Clients perceived by thin slice raters to be high in Therapy Interest and Likeability reported significantly higher alliance scores, over the first four sessions. Ratings of extraversion demonstrated the largest significant positive relationship to clients' alliance scores over the first four sessions ( $r(65) = 0.38, p = .002$ ). Clients perceived by thin slice raters to be high in traits of Schizoid PD reported significantly lower alliance scores over the first four sessions.

*Relation of thin slice ratings and average of session 1-4 alliance scores (controlling for symptom change from intake evaluation to session 5).* As outlined above, several thin slice variables proved to be significantly related to client rated alliance. For example, a significant positive correlation was found between alliance scores and extraversion ratings; however, there are two likely explanations for this relationship: (1) There is a genuine relationship between thin slice ratings of client extraversion and client rated alliance; or (2) The relationship between thin slice ratings of extraversion and client rated alliance is merely a reflection of a change in clients' depressive symptoms. In order to examine this possibility, correlations between clients' thin slice ratings and the average of their session one through four alliance scores were examined, with symptom change from the intake evaluation to session five covaried. We chose to covary symptom change over this time period (intake – session 5) in order to capture improvement over the full window by which symptom change may have occurred. Change in symptoms from intake to session five was operationalized using residualized change scores. The correlations in column three of Table 4 show relationships between thin slice ratings and WAI session 1-4 avg scores that is free from any variance that may have been accounted for by early symptom change. With the variance accounted for by early symptom change removed, ratings of clients' Therapy Interest, Extraversion, and Likeability were even stronger predictors of higher client rated alliance scores over the first four sessions. In the same model, clients perceived by thin slice raters to be high in traits of Schizoid PD reported lower alliance scores over the first four sessions at a trend level. No other significant relationships between thin slice ratings and client rated alliance were found in this model.



### Discussion

The primary purpose of this study was to elucidate the impact of pre-existing client traits on process and outcome in CT for Depression. To do so, trained observers watched very short video clips taken from clients' intake evaluations. On the basis of these clips, raters assessed clients on various personality and PD traits of interest. The construct validity and utility of these ratings were then examined, as we investigated the ability of these ratings to predict HRSD slope and likelihood of dropout. Lastly, the relation between thin slice ratings and the client rated alliance was investigated, with the intent of clarifying the relationship between client traits and the therapeutic alliance. We chose to employ the thin slice method, as we suspected that observer ratings, made on the basis of quick first impression, would provide unique information that may be lost when traditional assessment methods, like the SCID-II, are used as the only proxy of client traits.

Overall, we found compelling evidence that preexisting client traits have a meaningful relation with the therapeutic alliance and clients' subsequent symptom change. Thin slice ratings of Therapy Interest and Emotionality proved to be significant predictors of dropout likelihood. Client extraversion also emerged as a strong indicator of positive treatment response, as clients perceived to be high in extraversion had significantly steeper HRSD slopes and higher therapeutic alliance scores over the course of treatment. Similarly, clients' perceived to be high in traits of Avoidant and Schizoid PDs had less steep HRSD slopes over the course of treatment. This is a pattern broadly consistent with the Fournier et al. (2008) study, which found that CT was significantly less effective at reducing depressive symptoms for individuals with comorbid PDs than those without Axis II diagnoses. Thus, certain client traits do appear to have a significant impact on an individual's experience and ultimate success in CT for depression.

Our findings attest to the advantages of using observer ratings of client traits, as our thin slice ratings had the unique ability to predict information regarding outcome and dropout above and beyond traditional diagnostic information. Despite positive correlations between thin slice ratings of PD traits and their corresponding SCID-II prescreener scores, all of the SCID-II prescreener scores failed to emerge as significant predictors of symptom change and dropout. While this by no means suggests that thin slice rating should serve as a substitute for traditional assessment measures, it does support the notion that individuals quickly become aware of certain personality traits on the basis first impressions, and that these impressions may influence the nature of future interactions (Oltmanns et al., 2004).

Additionally, our thin slice ratings were unique predictors of the therapeutic alliance, as clients' perceived by thin slice raters to be high in Therapy Interest, Extraversion, and Likeability had significantly higher therapeutic alliance scores over the first four sessions. As our residual model shows, the relationship between these traits and client rated alliance was not accounted for by early symptom change. In fact, when early symptom change was entered as a covariate even stronger effect sizes emerged, suggesting that observer ratings of client traits provide information regarding clients' alliance scores that goes above and beyond symptom improvement. These findings stress the need to further examine how client qualities might impact the alliance outcome association (Barber, 2009).

### **Limitations**

While this study does support the need to consider client traits in future process outcome studies, it is important to note that there are several limitations. First, due to its naturalistic observational design, in which there was no manipulation of the independent variables, this study only allows for conclusions about correlational relationships to be drawn. However, this study

does establish the temporal precedence of the thin slice ratings occurring before any symptom change, dropout, or therapeutic alliance occurred, as all thin slice ratings were made on the basis of clients' intake evaluations that occurred prior to treatment. Additionally, naturalistic studies often evoke concern about the effects of a third confounding variable, such as major life events occurring outside of therapy, which could affect the relationships observed between variables.

Secondly, since the clients examined in this study had already received therapy as part of a larger study, there were several limitations to the study design. All clients assessed by thin slice raters had already received and completed 16-weeks of CT for depression as part of this larger study. Therefore our flexibility in choosing our thin slice segments was limited. Due to variability in the questions used in semi-structured interviews, the three questions used for thin-slice ratings were not asked verbatim for all clients. Additionally, some clients were not asked all three questions for various reasons (e.g. the assessor forgot, they were running low on time). Consequently, some clients did not have all three clips available, and all available clips for each client were used. Additionally, since these intake evaluations had already occurred, we had no way of ensuring that clients' talked for the full length of each clip. As a result, some clips contained very few words from the client. For these clips, it is possible that thin slice raters were attending more closely to subtle non-verbal cues than they were on clips that contained more dialogue.

Finally, it is important to take into consideration the nature and accuracy of thin slice ratings when interpreting these findings. Consistent with Oltmanns' et al. (2004), the relationship between thin slice ratings of PD traits and diagnostic measurements of PD traits were moderate at best. However, the fact there were any relationships, let alone notable positive correlations, between our four thin slice PD traits and their corresponding SCID-II prescreener scores, is

rather impressive given the minimal information presented to thin slice raters. Thin slice ratings are by no means meant to serve as perfect gauges of one's personality pathology, rather they are meant to paint a very broad picture of the target individual (Oltmanns et al., 2004). In our study we found that this "broad picture" happens to provide highly informative information on process and outcome in CT for depression.

### **Future Directions**

Future research should build upon the current study by further examining the impact of client traits on the process-outcome relations in CT for depression. Our findings provide preliminary evidence that client traits are an important predictor of both symptom change and the therapeutic alliance. Although this study focuses on the alliance specifically, there are several other process variables central to CT for depression. Future studies should begin to examine the possibility that such process outcome relationships change as a function of clients' unique personality pathology. The thin slice methodology may be used as an efficient and effective means to measure client traits. In our study, observer ratings provided unique information capable of predicting symptom change, dropout, and therapeutic alliance scores. Although the thin slice methodology is by no means the only way of assessing client traits, thin slice ratings provide a broad representation of how clients are judged by others, and it turns out that others' perceptions of client traits may have a unique connection to outcome in CT.

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## Appendix A: Tables

Table 1

*Correlations between Thin Slice Ratings and the Client Scores on Scid-II Prescreener*

		Thin Slice Ratings					
		Extraversion	Likability	Histrionic	Avoidant	Narcissistic	Schizoid
SCID-II	Schizoid	-0.16	-0.29*	—	—	—	0.13
	Narcissistic	—	—	—	—	0.22†	—
	Avoidant	-0.26*	-0.11	—	0.21	—	—
	Histrionic	0.22†	-0.15	0.21†	—	—	—

Note. \* $p < 0.05$ , †  $p < 0.09$

Table 2

*Correlations among Thin Slice Ratings*

Thin Slice Ratings	Therapy Interest	Extraversion	Likeability	Emotionality	Avoidant	Histrionic	Narcissistic	Schizoid
Therapy Interest	—	—	—	—	—	—	—	—
Extraversion	0.44**	—	—	—	—	—	—	—
Likeability	0.63***	0.48***	—	—	—	—	—	—
Emotionality	0.43**	0.40**	0.22	—	—	—	—	—
Avoidant	0.02	-0.34*	-0.16	0.20	—	—	—	—
Histrionic	0.19	0.58***	0.16	0.33*	-0.34*	—	—	—
Narcissistic	-0.26	0.26	-0.35*	-0.10	-0.29	0.55***	—	—
Schizoid	-0.26	-0.72***	-0.40**	-0.18	0.29	-0.35*	-0.11	—

*Note.* \* $p < 0.01$ , \*\* $p < 0.001$ , \*\*\* $p < 0.0001$

Table 3

*Thin Slice Ratings as Predictors of Dropout and Symptom Change*

	Dropout <sup>a</sup> (odds ratio estimates)	HRSD Slope <sup>c</sup> (r-type effect sizes)
<i>Views/Emotionality</i>		
Therapy Interest	1.89 <sup>b*</sup>	-0.05
Emotionality	2.00 <sup>b*</sup>	-0.20
<i>Personality/PD Traits</i>		
Extraversion	1.00	-0.35*
Likeability	1.05 <sup>b</sup>	-0.15
Avoidant	1.09 <sup>b</sup>	0.34*
Histrionic	1.13	-0.17
Narcissistic	1.27	-0.22
Schizoid	1.28 <sup>b</sup>	0.28 †

\* $p < 0.05$ , †  $p = 0.06$ .

*Note.* <sup>a</sup>For analyses in the left column, odds ratios were converted so that all were on the same scale (a scale consisting of values greater than 1). <sup>b</sup>The b superscript denotes variables which were related to a lower risk of dropout. The odds ratios for these predictors were initially less than 1. <sup>c</sup>For analyses in the right column, r-type effect sizes represent the strength of the relationship between thin slice ratings and clients' slope of symptom change, as measured by the HRSD. Negative signs indicate the predictor was associated with a steeper than average rate of change in HRSD scores.

Table 4

*Correlations between Thin Slice Ratings and Client Rated Alliance*

Thin Slice Ratings	WAI session 1	WAI session 1-4 avg	WAI <sup>a</sup> session 1-4 avg (symp change covaried)
Therapy Interest	0.20	0.29*	0.35*
Extraversion	0.31*	0.38**	0.48***
Likeability	0.17	0.31*	0.42**
Emotionality	0.15	0.07	0.08
Avoidant	-0.15	-0.17	-0.20
Histrionic	0.09	0.17	0.23
Narcissistic	0.00	0.00	0.04
Schizoid	-0.29*	-0.25*	-0.27†

\*  $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , †  $p = 0.08$ .

Note: Due to missing client alliance data at session 1, sample sizes range across the analyses above from  $n = 63$  to  $n = 65$ . All available data contributed to the alliance scores. Values in the first two columns represent effect sizes. <sup>a</sup>Values in the third column represent standardized estimates from the residual model.

## Appendix B: Thin Slice Rating Form

## Thin-Slice Rating Form

Section 1: Views/Emotionality	
<b>1. THERAPY INTEREST</b> <i>Items rated on a 0-6 point scale</i>	
A.) Did the client demonstrate a genuine interest in participating in therapy?	C:
B.) Did the client express any reservations about this form of therapy (CBT)?	C:
C.) Do you think it is likely that this client will drop out of therapy before completing the full 16 weeks of treatment?	C:
Notes/Examples:	
<b>2. EMOTIONALITY</b> (anxious, depressed, self-conscious, impulsive, vulnerable) <i>Item rated on a 0-10 point scale</i>	
Notes/Examples:	

Section 2: Personality/PD Traits	
<i>All items below rated on a 1-10 point scale</i>	
<b>3. EXTRAVERTED</b> (talkative, assertive, active, excitement-seeking, fun-loving)	C:
Notes/Examples:	
<b>4. LIKEABILITY</b> Based on your first impression, would you like to get to know this person better/How likable do you perceive this person to be?	
Notes/Examples:	C:
<b>5. SCHIZOID</b>	
A.) The client prefers to do things alone	C:
B.) The client has no close friends	C:
Notes/Examples:	
<b>6. HISTRIONIC</b>	
A.) The Client is unhappy when he/she is not the center of attention	C:
B.) The client uses physical appearance to draw attention to himself/herself	C:
Notes/Examples:	

<b>7. NARCISSISTIC</b>	
A.) <i>The client is stuck up or high and mighty</i>	<b>C:</b>
B.) <i>The client takes advantage of other people</i>	<b>C:</b>
<b>Notes/Examples:</b>	
<b>8. AVOIDANT</b>	
A.) <i>The client worries that other people will criticize or reject him or her</i>	<b>C:</b>
B.) <i>The client thinks he/she is clumsy, unattractive or inferior to other people</i>	<b>C:</b>
<b>Notes/Examples:</b>	